

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2005-279447

(43)Date of publication of application : 13.10.2005

(51)Int.Cl.

C02F 3/12

C02F 1/44

C02F 1/52

C02F 3/30

(21)Application number : 2004-097291

(71)Applicant : KUBOTA CORP

(22)Date of filing : 30.03.2004

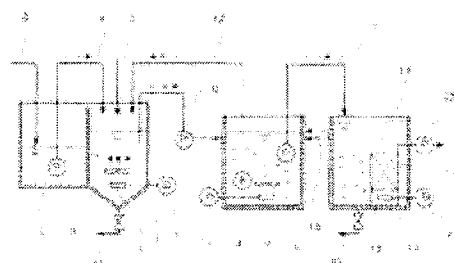
(72)Inventor : KAMISAKA TAICHI  
NISHIMORI KAZUHISA  
MASUTANI HIDETOSHI

## (54) WATER TREATMENT METHOD AND APPARATUS

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a water treatment method and an apparatus wherein pollutants in waste water are efficiently removed by keeping the flow balance of a liquid mixture in a vessel to easily follow the fluctuation of flow-in rate while holding the concentration of microorganisms (activated sludge) high to shorten the reaction time.

**SOLUTION:** The pollution components easily settled in a liquid to be treated is removed by treating the liquid to be treated in a batch type reaction vessel 1 by a batch type activated sludge process, supplying the low concentration liquid in the batch type reaction vessel 1 to a 2nd reaction vessel 9, treating the liquid mixture in the 2nd reaction vessel 9 by the membrane separation and the activated sludge process while circulating through a membrane separation vessel 16 and returning the liquid mixture in the 2nd reaction vessel 9 to the batch type reaction vessel 1 to prompt the biological reaction under high concentration of the activated sludge in the batch type reaction vessel 1. Hardly separating materials are membrane-separated in the membrane separation vessel 16 while decreasing the sludge concentration and suppressing



the clogging of a membrane surface and hardly biologically decomposing material is decomposed under a high oxygen dissolving efficiency.